



US006167520A

United States Patent [19]

Touboul

[11] Patent Number: 6,167,520

[45] Date of Patent: Dec. 26, 2000

[54] **SYSTEM AND METHOD FOR PROTECTING A CLIENT DURING RUNTIME FROM HOSTILE DOWNLOADABLES**

[75] Inventor: Shlomo Touboul, Kefar-Haim, Israel

[73] Assignee: Finjan Software, Inc., San Jose, Calif.

[21] Appl. No.: 08/790,097

[22] Filed: Jan. 29, 1997

Related U.S. Application Data

[60] Provisional application No. 60/030,639, Nov. 8, 1996.

[51] Int. Cl.⁷ G06F 11/30; H04L 9/00

[52] U.S. Cl. 713/200; 709/225

[58] Field of Search 395/186, 200.55, 395/200.59, 364/222.5, 286.4, 286.5; 326/8; 711/163; 713/200, 201; 380/4, 25

[56] **References Cited****U.S. PATENT DOCUMENTS**

5,077,677	12/1991	Murphy et al.	395/10
5,359,659	10/1994	Rosenthal	380/4
5,361,359	11/1994	Tajalli et al.	395/700
5,485,409	1/1996	Gupta et al.	395/186
5,485,575	1/1996	Chess et al.	395/183.14
5,572,643	11/1996	Judson	395/793
5,623,600	4/1997	Ji et al.	395/187.01
5,638,446	6/1997	Rubin	380/25
5,692,047	11/1997	McManis	380/4
5,692,124	11/1997	Holden et al.	395/187.01
5,720,033	2/1998	Deo	395/186
5,724,425	3/1998	Chang et al.	380/25
5,740,248	4/1998	Fieres et al.	380/25
5,761,421	6/1998	Van Hoff et al.	395/200.53
5,765,205	6/1998	Breslau et al.	711/203
5,784,459	7/1998	Devarakonda et al.	380/4
5,796,952	8/1998	Davis et al.	395/200.54
5,805,829	9/1998	Cohen et al.	395/200.32
5,832,208	11/1998	Chen et al.	395/187.01
5,850,559	12/1998	Angelo et al.	395/750.03
5,859,966	1/1999	Hayman et al.	395/186
5,864,683	1/1999	Boebert et al.	395/200.79
5,892,904	4/1999	Atkinson et al.	395/187.01

5,956,481 9/1999 Walsh et al. 395/186
5,983,348 11/1999 Ji 713/200**OTHER PUBLICATIONS**IBM AntiVirus User's Guide Version 2.4, p. 6-7, Nov. 1995.
Zhang, X.N., *Computer*, "Secure Code Distribution," vol. 30, Jun., 1997, pp.: 76-79.

"Finjan Announces a Personal Java™ Firewall For Web Browsers—the SurfinShield™ 1.6", Press Release of Finjan Releases SurfinShield, Oct. 21, 1996, 2 pages.

"Finjan Software Releases SurfinBoard, Industry's First JAVA Security Product For the World Wide Web", Article published on the Internet by Finjan Software, Ltd., Jul. 29, 1996, 1 page.

"Powerful PC Security for the New World of Java™ and Downloadables, Surfin Shield™" Article published on the Internet by Finjan Software Ltd., 1996, 2 Pages.

"Company Profile Finjan—Safe Surfing, The Java Security Solutions Provider" Article published on the Internet by Finjan Software Ltd., Oct. 31, 1996, 3 pages.

"Finjan Announces Major Power Boost and New Features for SurfinShield™ 2.0" Las Vegas Convention Center/Pavillion 5 P5551, Nov. 18, 1996, 3 pages.

(List continued on next page.)

Primary Examiner—Dieu-Minh T. Le
Attorney, Agent, or Firm—Graham & James LLP[57] **ABSTRACT**

A system and method examine execution or interpretation of a Downloadable for operations deemed suspicious or hostile, and respond accordingly. The system includes security rules defining suspicious actions and security policies defining the appropriate responsive actions to rule violations. The system includes an interface for receiving incoming Downloadable and requests made by the Downloadable. The system still further includes a comparator coupled to the interface for examining the Downloadable, requests made by the Downloadable and runtime events to determine whether a security policy has been violated, and a response engine coupled to the comparator for performing a violation-based responsive action.

8 Claims, 6 Drawing Sheets